

PATENT
App. Ser. No.: 10/645,740
Atty. Dkt. No. ROC9200300203US1
PS Ref. No.: IBMK30203

IN THE CLAIMS:

Please amend the claims as follows:

1. (Currently Amended) A method for optimizing execution of a query that is repeatedly issued from an issuing entity against a database, the method comprising:
 - executing the query against the database to obtain an initial query result;
 - returning the initial query result to the issuing entity; and
 - managing re-execution of the query by:
 - storing the initial query result in a temporary query result data structure;
 - executing a trigger procedure for tracking database changes;
 - when the trigger procedure detects a database change, updating the temporary query result data structure on the basis of the detected database change; and
 - when the query is submitted for re-execution ~~re-executed~~ against the database, returning the temporary query result data structure to the issuing entity as query result.
2. (Currently Amended) The method of claim 1, wherein managing the re-execution of the query is only performed if the query includes a flag indicating that the query is to be repeated execution executed two or more times.
3. (Original) The method of claim 1, further comprising, prior to executing the query against the database to obtain the initial query result:
 - determining an amount of system resources required for executing the query;
 - and
 - managing the re-execution of the query ~~only~~ if the determined amount exceeds a predetermined threshold value.
4. (Original) The method of claim 3, wherein the predetermined threshold value is one of user-specific, application-specific and system-specific.
5. (Currently Amended) The method of claim 1, further comprising:

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providing a notification to the issuing entity indicating the updating of the temporary query result data structure.

6. (Original) The method of claim 1, wherein the trigger procedure executes at least one of:

a delete trigger for tracking delete operations performed on the database; an insert trigger for tracking insert operations performed on the database; and an update trigger for tracking update operations performed on the database.

7. (Original) The method of claim 1, wherein managing the re-execution of the query comprises:

determining a timeframe from a predefined time parameter; and managing the re-execution in accordance with the determined timeframe.

8. (Original) The method of claim 7, wherein determining the timeframe comprises:

extracting the predefined time parameter from the query.

9. (Original) The method of claim 7, wherein the predefined time parameter indicates a point of time when execution of the trigger procedure is to be terminated.

10. (Original) The method of claim 9, further comprising, after the determined timeframe is elapsed:

deleting the temporary query result data structure; and
if the query is re-executed against the database, executing the query against the database to obtain a new initial query result.

11. (Original) The method of claim 7, wherein the predefined time parameter indicates a point of time when the temporary query result data structure is to be deleted.

12. (Original) The method of claim 7, further comprising, after the determined timeframe is elapsed:

determining, whether an extension time parameter can be identified; and

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if so, updating the timeframe on the basis of the identified extension time parameter.

13. (Original) The method of claim 7, wherein the predefined time parameter is one of a query-specific parameter, a database-specific parameter, an issuing entity-specific parameter and a system-specific parameter.

14. (Currently Amended) A method for optimizing system resources used for execution of to execute a query that is repeatedly issued from an issuing entity against a database ~~in a data processing system~~, the method comprising:

tracking changes to the database; and

if a database change is detected:

retrieving a temporary query result data structure storing a query result ~~that was previously obtained from a previous in-response-to execution of the query;~~

updating the temporary query result data structure on the basis of the detected database change; and

if the query is submitted for re-execution re-executed against the database, returning the temporary query result data structure as a query result to the issuing entity.

15. (Currently Amended) The method of claim 14, further comprising:

providing a notification to the issuing entity indicating the updating of the temporary query result data structure.

16. (Original) The method of claim 14, further comprising:

receiving another query against the database;

determining, whether the another query includes all query conditions defined by the query; and

if so, determining another query result for the another query using the temporary query result data structure.

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17. (Currently Amended) The method of claim 14, wherein the tracking is only performed if the query includes that the query is to be repeated execution executed two or more times.

18. (Currently Amended) The method of claim 14, further comprising, prior to the tracking:

determining an amount of system resources required to execute for execution of the query; and

tracking the changes to the database only if the determined amount exceeds a predetermined threshold value.

19. (Original) The method of claim 18, wherein the predetermined threshold value is one of user-specific, application-specific and system-specific.

20. (Original) The method of claim 14, wherein the tracking of the changes to the database is performed by a trigger procedure.

21. (Currently Amended) A computer readable medium containing a program which, when executed, performs a process for optimizing execution of a query that is repeatedly issued from an issuing entity against a database, the process comprising:
executing the query against the database to obtain an initial query result;
returning the initial query result to the issuing entity; and
managing re-execution of the query by:

storing the initial query result in a temporary query result data structure;

executing a trigger procedure for tracking database changes;

when the trigger procedure detects a database change, updating the temporary query result data structure on the basis of the detected database change; and

when the query is submitted for re-execution re-executed against the database, returning the temporary query result data structure to the issuing entity as query result.

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22. (Currently Amended) The computer readable medium of claim 21, wherein managing the re-execution of the query is only performed if the query includes a flag indicating that the query is to be repeated execution executed two or more times.

23. (Original) The computer readable medium of claim 21, wherein the process further comprises, prior to executing the query against the database to obtain the initial query result:

determining an amount of system resources required for executing the query;
and

managing the re-execution of the query only if the determined amount exceeds a predetermined threshold value.

24. (Original) The computer readable medium of claim 23, wherein the predetermined threshold value is one of user-specific, application-specific and system-specific.

25. (Currently Amended) The computer readable medium of claim 21, wherein the process further comprises:

sending a notification to the issuing entity indicating the updating of the temporary query result data structure.

26. (Original) The computer readable medium of claim 21, wherein the trigger procedure executes at least one of:

a delete trigger for tracking delete operations performed on the database;
an insert trigger for tracking insert operations performed on the database; and
an update trigger for tracking update operations performed on the database.

27. (Original) The computer readable medium of claim 21, wherein managing the re-execution of the query comprises:

determining a timeframe from a predefined time parameter; and
managing the re-execution in accordance with the determined timeframe.

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28. (Original) The computer readable medium of claim 27, wherein determining the timeframe comprises:

extracting the predefined time parameter from the query.

29. (Original) The computer readable medium of claim 27, wherein the predefined time parameter indicates a point of time when execution of the trigger procedure is to be terminated.

30. (Original) The computer readable medium of claim 29, wherein the process further comprises, after the determined timeframe is elapsed:

deleting the temporary query result data structure; and

if the query is re-executed against the database, executing the query against the database to obtain a new initial query result.

31. (Original) The computer readable medium of claim 27, wherein the predefined time parameter indicates a point of time when the temporary query result data structure is to be deleted.

32. (Original) The computer readable medium of claim 27, wherein the process further comprises, after the determined timeframe is elapsed:

determining, whether an extension time parameter can be identified; and

if so, updating the timeframe on the basis of the identified extension time parameter.

33. (Original) The computer readable medium of claim 27, wherein the predefined time parameter is one of a query-specific parameter, a database-specific parameter, an issuing entity-specific parameter and a system-specific parameter.

34. (Currently Amended) A computer readable medium containing a program which, when executed, performs a process for optimizing system resources used for execution of to execute a query that is repeatedly issued from an issuing entity against a database in a data processing system, the process comprising:

tracking changes to the database; and

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if a database change is detected:

retrieving a temporary query result data structure storing a query result that was previously obtained from a previous in response to execution of the query;

updating the temporary query result data structure on the basis of the detected database change; and

if the query is submitted for re-execution re-executed against the database, returning the temporary query result data structure as a query result to the issuing entity.

35. (Currently Amended) The computer readable medium of claim 34, wherein the process further comprises:

sending a notification to the issuing entity indicating the updating of the temporary query result data structure.

36. (Original) The computer readable medium of claim 34, wherein the process further comprises:

receiving another query against the database;

determining, whether the another query includes all query conditions defined by the query; and

if so, determining another query result for the another query using the temporary query result data structure.

37. (Currently Amended) The computer readable medium of claim 34, wherein the tracking is only performed if the query includes a flag indicating that the query is to be repeated execution executed two or more times.

38. (Original) The computer readable medium of claim 34, wherein the process further comprises, prior to the tracking:

determining an amount of system resources required for execution of the query; and

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tracking the changes to the database only if the determined amount exceeds a predetermined threshold value.

39. (Original) The computer readable medium of claim 38, wherein the predetermined threshold value is one of user-specific, application-specific and system-specific.

40. (Original) The computer readable medium of claim 34, wherein the tracking of the changes to the database is performed by a trigger procedure.

41. (Currently Amended) A data processing system comprising:
a database; and
a query optimizer residing in memory for optimizing execution of a query that is repeatedly issued from an issuing entity against the database, the query optimizer being configured for:
executing the query against the database to obtain an initial query result;
returning the initial query result to the issuing entity; and
managing re-execution of the query by:
storing the initial query result in a temporary query result data structure;
executing a trigger procedure for tracking database changes;
when the trigger procedure detects a database change, updating the temporary query result data structure on the basis of the detected database change; and
when the query is submitted for re-execution re-executed against the database, returning the temporary query result data structure to the issuing entity as query result.

42. (Currently Amended) A data processing system comprising:
a database; and
a query optimizer residing in memory for optimizing system resource use for execution of a query that is repeatedly issued from an issuing entity against the database, the query optimizer being configured for:

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tracking changes to the database; and

if a database change is detected:

retrieving a temporary query result data structure storing a query result that was previously obtained from a previous in response to execution of the query;

updating the temporary query result data structure on the basis of the detected database change; and

if the query is submitted for re-execution re-executed against the database, returning the temporary query result data structure as a query result to the issuing entity.